

# ON THE CAPTURE OF A GANGETIC DOLPHIN *PLATANISTA GANGETICA* ROXBURGH (MAMMALIA: CETACEA: PLATANISTIDAE) IN DUDUYA RIVER, NORTHERN WEST BENGAL<sup>1</sup>

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(With a plate and a text-figure)

One 220 cm long pregnant Gangetic dolphin, having supernumerary teeth was netted in the Duduya river, Jalpaiguri district, West Bengal on 5 December 1985. Local migration is not uncommon in this dolphin. Both the adult female and the 24.7 cm long male foetus have been described. The small size of the foetus in early December is either due to delayed conception or is suggestive of different breeding seasons in different populations of this dolphin.

## INTRODUCTION

A dolphin was netted by some fishermen from the Duduya river in the village of Jhalsalbari (c. 26°33' 45" N, 39°6' 35" E), about 18 km south-east of Dhupguri, Jalpaiguri district, West Bengal. Its sudden appearance in that stream was first noticed by some fishermen towards the end of November 1985. They thought it to be a *magar machh* (gharial). They set nets on 3 December 1985 to catch the animal and captured it on 5 December. It survived for ten days in captivity. The carcass was ice-preserved by one Mintu Chowdhury, a snake-catcher of the nearby locality. The news was published in some newspapers, and generated much curiosity among local people.

The specimen was brought to Dhupguri by Chowdhury, where I examined it on 13 February 1986. Though the specimen was on the verge of putrefaction, it retained the essential morphological characters for study. It was actually a Gangetic dolphin *Platanista gangetica*.

## OBSERVATIONS

The specimen (Plate 1, Fig. 1A) was an adult female, 220 cm long. The dorsal integument was slaty black and abdominal, dull to pinkish white. A portion of cranium behind the rostrum was a little exposed. As a result the flanges

(maxillary crest) were visible. The dorsal fin was low. The single slit-like blowhole was longitudinal and situated above the head. The flippers were broad and almost triangular. Their outer margins were scalloped. The horizontal fluke had a notch normal in dolphins. The measurements of different body-parts agree with those of *Platanista gangetica* (Table 1). A foetus (Plate 1, Fig. 1C), which was obtained from the left uterine horn, appeared to be about three months old, and a male. It was creamy white and weighed 450 g.

**Adult specimen** (gravid female): From the tip of snout to the notch of the tail the body measured 214 cm. Girth of the body behind the flippers was 110 cm. Overall weight was 90 kg. Snout was more than one-fifth of the body-length and contained supernumerary pointed white teeth, having widened and flat base (Plate 1). In some of the anteriormost teeth, the roots were so widened that they came out of the sockets and were simply anchored to the gum muscle, and liable to fall off (cf. Anderson 1878, p. 438). The dental formula in the specimen was

$$\frac{32/33}{35/35}$$

The symphysis of mandible was quite long and a little more than half the length of the ramus of mandible. Eyes were minute and close to the angle of gape. The margin of blowhole was slightly elevated. The dorsal fin was small and contiguous with the low ridge behind and further away from the central point of the body.

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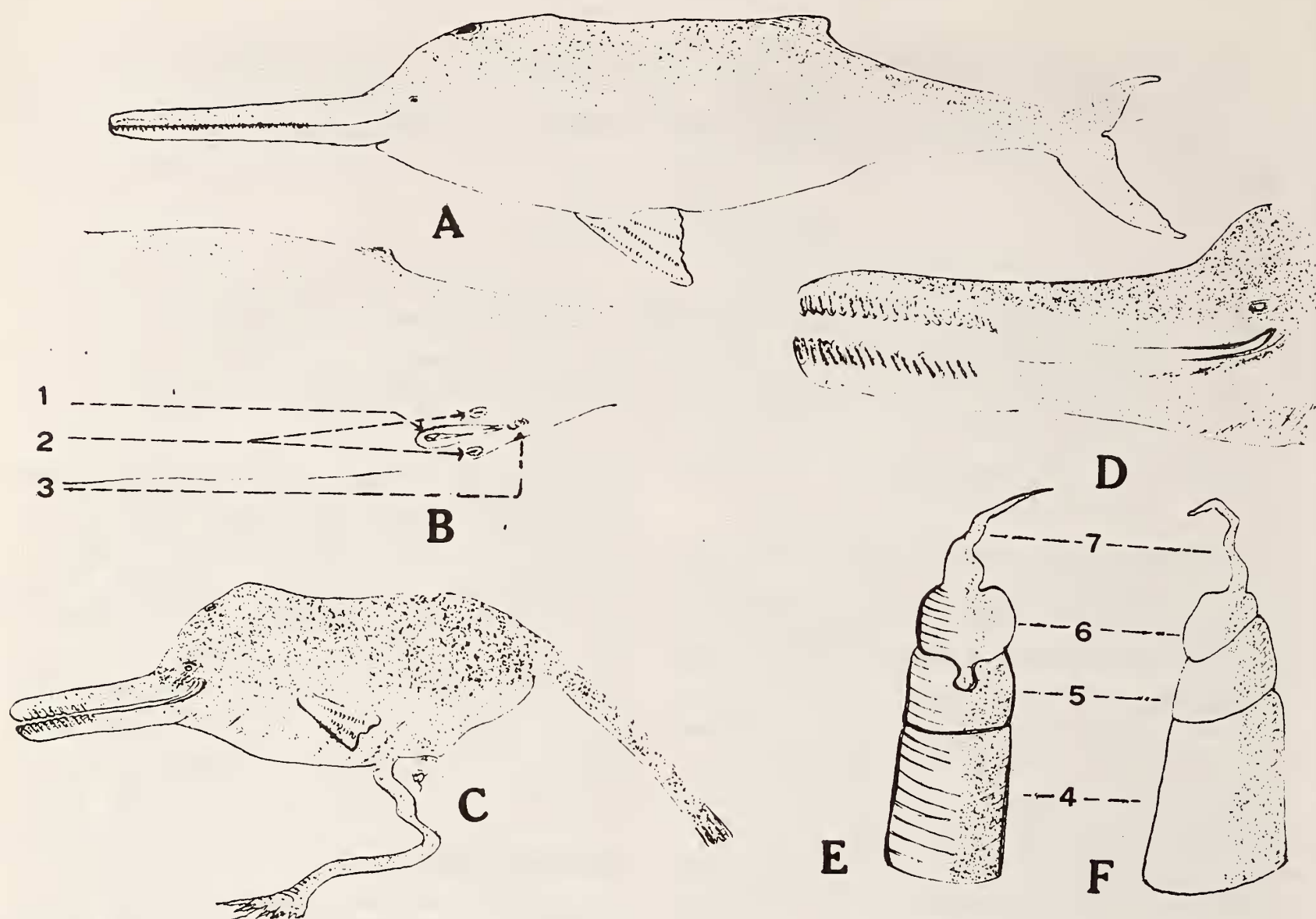
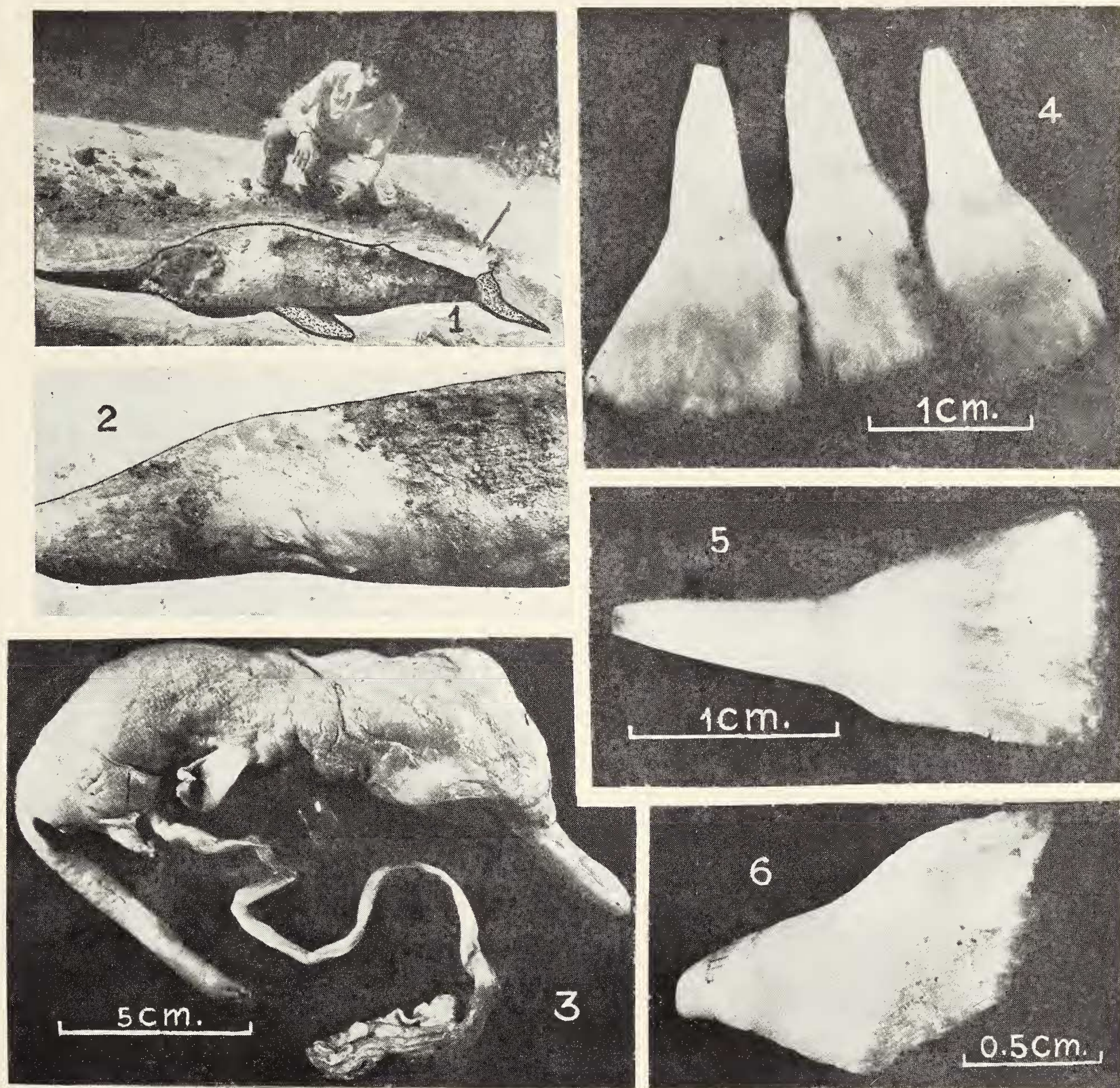


Fig. 1. A. Gangetic dolphin *Platanista gangetica*, B. Abdominal area, showing position of genital orifice (1), mammary slits (2) and anus (3). C. Foetus showing the slender tail, small flipper and urogenital organ, just caudal to umbilicus. D. Beak of the foetus, showing dental papillae. E. Protruded male genital organ of the foetus. F. Copulatory organ of ram (*Ovis* sp.): prepuce (4), collum glandis (5), galea glandis (6), processus urethrae (7).

Measurements (in cm) were as follows:

|                                      |     |                               |      |
|--------------------------------------|-----|-------------------------------|------|
| Length from snout to notch of tail   | 214 | Anal aperture from snout      | 155  |
| Length from snout to flippers        | 78  | Mammary: Length of slit       | 1.90 |
| Length from flippers to tip of fluke | 125 | Distance from vaginal orifice | 3.50 |
| Length of rostrum                    | 46  |                               |      |
| Length of rostrum at middle          | 5   |                               |      |
| Length of ramii of mandible          | 60  |                               |      |
| Symphysis of mandible                | 35  |                               |      |
| Flippers: Length: anterior           | 30  |                               |      |
| posterior                            | 15  |                               |      |
| basal                                | 28  |                               |      |
| Fluke: Length: outer                 | 38  |                               |      |
| expanse                              | 40  |                               |      |
| along notch                          | 21  |                               |      |
| Blowhole: Length of slit             | 4.2 |                               |      |
| Vagina: Length of orifice            | 12  |                               |      |
| Distance from snout                  | 142 |                               |      |

**Foetus (male):** The foetus was 24.7 cm long and weighed 450 g. Beak forceps-like, long and moderately broad. In the anterior region a number of tiny dental papillae were developed within each serrated muscular groove or gum muscle (Fig. 1D). Head large and dome-shaped, blowhole aperture and minute eyes distinct. Flippers were leaf-like and distally wrinkled. The umbilical cord was a little anterior to the protruded urogenital organ. The distal part of the latter bore the urethra and



1. The semi-decomposed body of *Platanista* sp. from Duduya river. 2. Abdomen of the specimen showing vagina and mammary slits. 3. Foetus with the umbilical cord. 4. Three intact and unworn teeth of lower jaws with widened bases. 5. One of the anteriormost teeth, with crown slightly eroded, showing exposed pulp cavity. 6. One of the posterior most teeth with unworn crown.

penis. The tail or caudal portion was long, narrow and ventro-dorsally plano-convex. It commenced a little away from genitalia. The fluke was double-folded. Actually, both the lateral halves were folded first downward then inward, rendering the tail convex and of uniform diameter, when viewed from above.

Measurements of the male foetus (in cm) were as follows:

|                                                           |      |
|-----------------------------------------------------------|------|
| Length from snout to notch of tail                        | 24.7 |
| Length from snout to flippers                             | 10.7 |
| Length from snout to anal aperture                        | 17.5 |
| Length of snout to umbilicus                              | 14   |
| Length of snout to gape of mouth                          | 5    |
| Length of rostrum to maxillary crest                      | 3.5  |
| Mandibular ramii: Length                                  | 6    |
| Symphysis of mandible                                     | 3.80 |
| Length of tail from anal aperture                         | 7.25 |
| Distance of anal aperture from genitalia                  | 2    |
| Distance of anal aperture from umbilicus                  | 3    |
| Head: Length                                              | 4.2  |
| Breadth                                                   | 5    |
| Height                                                    | 4    |
| Gap between eye and blowhole                              | 2.4  |
| Flippers: Length                                          | 2.5  |
| Breadth                                                   | 1.9  |
| Width at base                                             | 0.8  |
| Fluke: Length                                             | 2.5  |
| Breadth                                                   | 2.5  |
| Umbilical cord: Length up to placenta                     | 16   |
| Average diameter                                          | 0.4  |
| Genitalia: Length of protruded invaginated abdominal skin | 0.9  |
| Diameter                                                  | 0.5  |
| Penis, including urethra                                  | 0.9  |

#### DISCUSSION

On the basis of the first information regarding the occurrence of the dolphin from the Duduya river and its photographs, the animal was mistaken for the marine plumbeous dolphin *Sousa chinensis plumbeus*. It was hence felt desirable to make a physical examination of the specimen. The presence of maxillary crests, lon-

gitudinal blowhole, long mandibular symphysis, a constricted neck region, broad fan-like flippers and flattened dental roots (Plate 1) separate it from other dolphins and its biometry confirmed its identity as *Platanista gangetica*.

The zoo-geography and fossil evidence of related extinct species from Miocene and Pliocene marine deposits suggest that the ancestral platanistids were all marine and widely distributed. Today, only four surviving monotypic species of this group of cetacea like the lung-fishes (dipnoi) adapted their life to some of the fresh water rivers in the Indian sub-continent, China and South America. The Ganga *Platanista* used to occur plentifully in the Ganga and Brahmaputra river systems. The animal used to move through their major tributaries in Bangladesh, Assam, West Bengal, Bihar, parts of Nepal and Uttar Pradesh. It also frequently descended the tidal waters close to Bay of Bengal. Earlier it had easy access from one river system to the other through the Padma-Bhagirathi connection. But since silting up of the 2 km long connecting 'neck' of the Bhagirathi with the Padma and the construction of the Farakka barrage in 1972, the entire eastern population has been segregated into two isolated ones now confined to either of the two systems, namely the Bhagirathi-Hugli and the Brahmaputra-Padma.

Extensive fishing, increase in the deposition of silting and pollution reduced the population to a vulnerable position. Recently the animal has been included under Schedule I of Wildlife (Protection) Act 1972.

The occurrence of the adult female dolphin in the Duduya river was certainly an example of local migration. It definitely came there from the Brahmaputra system via Jamuna and Jaldhaka rivers. The animal generally avoids shallow and narrow water-courses, so under what circumstances it reached the far-off, somewhat narrow stream in Dhupguri area is not clear.

In *Platanista*, old females, with mostly decayed teeth, reach a length of 250 cm or even

more. Their symphysis becomes two-thirds the length of the ramii of the mandibles. From these points, the specimen from Duduya was not old. Its teeth were pointed and excepting a few anterior teeth (Plate 1), all had intact crowns. The teats were concealed within the tight mammary slits (Plate 1, Fig. 1B). The Gangetic dolphin reaches sexual maturity at about ten years when it grows to a length of 170-200 cm (Kasuya 1972). Therefore, it appears that the specimen under report was in her prime.

However, the supernumerary teeth in the specimen do not tally with any known figure of dentition in *Platanista*. Owen (1845) stated that there are 30 teeth on each side of the upper jaw and 32 on each side of the lower jaw. According to Anderson (1878) the dental formula for the adult Sutej female is: upper R 32/L 33, lower R 31/L 32 and for Ganga female it is: upper R 28/L 31, lower R 30/L 30. The dental formula attributed by Blanford (1891) for the Ganga *Platanista* is 30/30 on each side. Therefore, the

dental pattern exhibited by the specimen from Duduya, which is  $\frac{32}{33}$ , is unique and exceeds the total  $\frac{35}{35}$

number of teeth on *Platanista* recorded so far.

Foetal growth-rate in dolphins increases rapidly during five to eight months of pregnancy, when it becomes ten times that of some other mammals (Harrison and King 1980). According to Harrison (1972) the foetus in *Platanista* reaches the full neo-natal length of 70.75 cm at the time of parturition in April. The present foetus was only one-third of the mature length and from the rudimentary appendages, narrow caudal region and developing dental papillae, it appears to be three to four months old, thus placing its conception around August-September. Anderson (1878) got one almost mature male foetus measuring 72.15 cm in March 1873. If the gestation period in *Platanista* is taken as eight to nine months, as stated by Anderson (1878), then it agrees with his view that young are born during April-July. This period of par-

TABLE 1

EXTERNAL BODY MEASUREMENTS (IN CM) OF GANGETIC DOLPHIN FROM DUDUYA RIVER, WITH THOSE RECORDED BY ANDERSON (1878), BLANFORD (1891) AND PILLERI (1970) FOR COMPARISON

|                                         | Anderson<br>2 Mar. 1878<br>female specimen | Anderson<br>female,<br>with foetus | Blanford<br>(1891) | Pilleri<br>No. 11.<br>female<br>83.5 kg | Pilleri<br>No. 12. Q.<br>female<br>66 kg | Adult<br>female from<br>Duduya<br>river<br>5 Dec. 1985 |
|-----------------------------------------|--------------------------------------------|------------------------------------|--------------------|-----------------------------------------|------------------------------------------|--------------------------------------------------------|
| Tip of snout to notch of tail           | 257.71                                     | 243.45                             | 222.5              | 240                                     | 200                                      | 214                                                    |
| Tip of snout to flipper                 | 92.95                                      | 85.80                              | —                  | 88                                      | 76                                       | 78                                                     |
| Tip of snout to angle of mouth          | 52.30                                      | 48.80                              | —                  | —                                       | —                                        | 46                                                     |
| Length of mandible (left)               | —                                          | —                                  | —                  | 44                                      | —                                        | 60                                                     |
| Rostrum width at mandible               | —                                          | —                                  | —                  | —                                       | —                                        | 5                                                      |
| Length of mandibular symphysis          | —                                          | —                                  | —                  | —                                       | —                                        | 35                                                     |
| Tip of snout to genitalia               | —                                          | —                                  | —                  | 157                                     | 140                                      | 142                                                    |
| Tip of snout to anus                    | —                                          | —                                  | —                  | 162                                     | 143                                      | 155                                                    |
| Length of flipper                       | 44.20                                      | 42.90                              | 31                 | 27                                      | 28                                       | 30                                                     |
| Length of fluke                         | 50.38                                      | 46.80                              | —                  | 24                                      | 23                                       | 38                                                     |
| Expanse of fluke                        | 67.60                                      | —                                  | 47                 | 50                                      | 50                                       | 40                                                     |
| Length of genital orifice               | 15.21                                      | 11.05                              | —                  | —                                       | —                                        | 13                                                     |
| Length of mammary slits                 | 2.60                                       | 1.45                               | —                  | —                                       | —                                        | —                                                      |
| Distance of teats from genital orifice  | —                                          | 3.51                               | —                  | —                                       | —                                        | —                                                      |
| Snout to dorsal fin                     | —                                          | —                                  | —                  | 130                                     | 107                                      | 125                                                    |
| Length of anterior margin of dorsal fin | —                                          | —                                  | —                  | 30                                      | 27                                       | 26                                                     |

turition is also supported by Harrison (1972), who studied four foetuses obtained from females collected in December. The measurements given by him for these foetuses were between 42.5 cm and 54.7 cm, whereas the foetus reported here was only 24.7 cm long. The measurements of the four foetuses quoted above are confusing, as Pillery (1970), who collected the four gravid females later studied by Harrison, mentioned that the embryos in them were 25 cm long. Pillery (1971) also observed copulatory behaviour in Ganga *Platanista* in Assam in April. However, if Harrison was correct, then the foetus collected from Duduya specimen is to be considered as a case of poor development or delayed implantation. Or else, there may be two different populations of the Gangetic dolphin with different breeding seasons and somewhat different dental formulae.

The rudimentary urogenital organ in the foetus with apical S-shaped thread-like urethra and penis (Fig. 1E) resembles that of a ram (Ovinae: Bovidae). The penis which normally lies in the invaginated abdominal skin was

found in the foetus studied by me to be protruded outside (Figs. 1C, E), probably due to death-shock.

It is observed while going through the literature, that adult males are proportionately less in number among captured specimens. But male foetuses obtained from gravid females are not so infrequent. Whether it is due to factors like high male mortality rate, male infanticide or some other reasons is not yet studied. However, regarding the social and nuptial behaviour of *Platanista* our knowledge is still fragmentary. It is not unlikely that the gravid female ventured out to find a safe breeding zone.

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